WELL COMPLETION DIAGRAM WELL NO: MW-39-040 **PROJECT NO:** 315024.IM.02 **PROJECT:** PG&E Topock IM Investigation (Phase 5 2004) LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench. DRILLING CONTRACTOR: Prosonic Corp. Maretta, OH **DRILLING START DATE: ---DRILLING METHOD:** Rotosonic **DRILLING END DATE: ---**LOGGER: J. Wellmeyer WELL COMPLETION DATE: 04/29/2004 TOP OF WELL CASING (NGVD 29): 468.02 NORTHING COORDINATE (CCS DAND 27, ZONE 5): 2102506.22 **GROUND SURFACE ELEVATION (NGVD 29): 465.20** EASTING COORDINATE (CCS NAD 27 ZONE 5): 7616091.44 MONUMENT MOUNTED LOCKING WELL **WELL CONSTRUCTION & SCREEN DETAILS WELL MATERIAL:** SCH 40 PVC **CASING DIAMETER: 1-in** SEAL TYPE: BENTONITE PELLETS SCREEN LENGTH: 1. ALL DEPTHS ARE REPORTED AS 10-ft FEET BELOW GROUND SURFACE. SLOT TYPE: slot 0.02-inch PACK TYPE: #3 SAND SUMP LENGTH: 30.3-ft **GROUT** 19.5 TOP DEPTH OF SEAL SEAL TOP DEPTH OF FILTER PACK 25.5 TOP DEPTH OF SCREEN 30.0 CENTRALIZER DEPTH(S) FILTER PACK BOTTOM DEPTH OF SCREEN 40.0 BOTTOM OF WELL CASING 70.3 -70.0 BOTTOM DEPTH OF FILTER PACK 70.3 BOTTOM DEPTH OF BOREHOLE WELL DIAGRAM IS NOT TO SCALE CH2MHILL

WELL COMPLETION DIAGRAM WELL NO: MW-39-070 **PROJECT NO:** 315024.IM.02 **PROJECT:** PG&E Topock IM Investigation (Phase 5 2004) LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench. DRILLING CONTRACTOR: Prosonic Corp. Maretta, OH **DRILLING START DATE: ---DRILLING METHOD:** Rotosonic **DRILLING END DATE: ---**LOGGER: J. Wellmeyer WELL COMPLETION DATE: 04/29/2004 TOP OF WELL CASING (NGVD 29): 468.02 NORTHING COORDINATE (CCS DAND 27, ZONE 5): 2102506.30 **GROUND SURFACE ELEVATION (NGVD 29): 465.20** EASTING COORDINATE (CCS NAD 27 ZONE 5): 7616091.38 MONUMENT MOUNTED LOCKING WELL **WELL CONSTRUCTION & SCREEN DETAILS WELL MATERIAL:** SCH 40 PVC **CASING DIAMETER: 1-in** SEAL TYPE: BENTONITE PELLETS SCREEN LENGTH: 1. ALL DEPTHS ARE REPORTED AS 10-ft FEET BELOW GROUND SURFACE. SLOT TYPE: slot 0.02-inch PACK TYPE: #3 SAND **SUMP LENGTH:** 0.3-ft **GROUT** 42.0 TOP DEPTH OF SEAL **SEAL** TOP DEPTH OF FILTER PACK 56.0 TOP DEPTH OF SCREEN 60.0 CENTRALIZER DEPTH(S) FILTER PACK BOTTOM DEPTH OF SCREEN 70.0 BOTTOM OF WELL CASING 70.3 -70.0 BOTTOM DEPTH OF FILTER PACK 70.3 BOTTOM DEPTH OF BOREHOLE WELL DIAGRAM IS NOT TO SCALE CH2MHILL

SHEET 1 of 4							PROJECT NUMBER: 315024.IM.02				BORING NUMBER: MW-39							
						S	OIL BORIN		3									
PROJECT NAM PG&E Topo		nvestiga	tion (Ph	nase 1 2004	1)		E DEPTH (ft): 118.3		DRILLING CONTRA	CTOR: c Corp. Mar	cotto OU							
SURFACE ELEV	/ATIO		IORTH:	ING (CCS	NAD 27 Z 5):	EAS	TING (CCS NAD 27	7 Z 5):	DATE AND TIME ST	TARTED: DATE AND TIME COMPLE								
465.3 ft.	THOD:		2,1	02,494.95		WA1	7,616,099.30 TER LEVEL (ft):		04/19/2004 DRILLING EQUIPM		04/20/2004							
Rotosonic LOCATION: Floodplain well field Topock, CA Central dune area,							oximately 300' north	of	Limited Acces		continuous 4 core, 6 casing							
railroad, 150' east of extraction well bench.							-			J. Wellmey								
		SAMPLE	>	USCS	SOIL DESCRIPTION					COMMENTS								
DEPTH BGS (feet)	INTERVAL	TYPE/ NUMBER	RECOVERY (ft)	CODE	PERCENT COM DENSI	MPOSI	L NAME, USCS SYMBO ITION, GRADING, GRA CONSISTENCY, STRUC	AIN SHAPE,	, MINERALOGY,	DAILY S	G OBSERVATIONS AND OPERATIONS, ITART AND END TIMES , DRILL RATE, LS, SAMPLING AND TESTING NOTES.							
 5 -		CC90	8				D SAND (SP) - It ye		10YR6/4, f-m sand,	4/19/0	04, 13:15 begin drilling pilot hole							
10		CC91	10	SP														
- 15 		CCJI		10	10	10	10	10	10	10	10				ne organic material, v			satura
				SC	sand, well rnd		C) - dk brn sand wit se.	th dk gray	clay 7.5YR3/2, f-m									
20				CL			D (CL) - dk brn 7.5Y oft, f black lamination		f sand, some									
 		CC92	10	SC	sand, well rno	id, loos mat	C) - dk brn sand wit se. D (CL) - dk brn 7.5Y											
25	$ / \setminus $			CL	organic mater	erial, so	oft, f black lamination	ns.	_									
	/ \			SP			DED SAND (SP) - yellowish brn, 7 ward, well rnd, loose, wet.		7070 III SdIIU, 30% f									
				SP/SC			D SAND WITH CLA y, m sand, fining upv											
30	$\setminus /$			SP			DED SAND (SP) - dk brn 7.5YR3/2, f-m sand, trace qtz, loose, wet.											
		CC93	10	SW	well grad soft, wet.	ED S	AND (SW) - yellow	ish brn, f-c	sand, well rnd, qtz,									
 35	\setminus				- firming													
										_								



SHEET 2 of 4						PROJECT NUMBER: 315024.IM.02					BORING NUMBER: MW-39									
						<u> </u>	OIL BORING I		3		1110 55									
PROJECT NAM			(5)				LE DEPTH (ft):		DRILLING CONTRAC											
PG&E Topock IM Investigation (Phase 1 2004) SURFACE ELEVATION: NORTHING (CCS NAD 27 Z 5):							ASTING (CCS NAD 27 Z 5): DATE AND TIME ST			C Corp. Maretta, OH ARTED: DATE AND TIME COMPLETED										
465.3 ft.				02,494.95	-,		7,616,099.30		04/19/2004 DRILLING EQUIPME		04/20/2004									
DRILLING ME Roto						WA	TER LEVEL (ft):		Limited Access		ontinuous 4 core, 6 casing									
LOCATION: Flo rai	odplair Iroad, 1	n well fiel L50' east	d Topod of extra	ck, CA Ce action well	entral dune area, bench.	, app	roximately 300' north of		LOGGED BY:	J. Wellmey	er									
		SAMPLE					SOIL DESCRIPTION			COMMENTS										
DEPTH BGS (feet)	INTERVAL TYPE/		RECOVERY (ft)	USCS CODE	PERCENT CON	SOIL NAME, USCS SYMBOL, COLOR, COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, ENSITY/CONSISTENCY, STRUCTURE, MOISTURE.					OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.									
			_		soft, wet.		SAND (SW) - yellowish br	n, f-c	sand, well rnd, qtz,											
					- thin blac	ck org	ganic laminations, loose													
 - 40 				SW		- dark gray brn, f-c sand, fining upwards, well rnd, loose, wet														
	<u> </u>	CC94	10	СН	FAT CLAY (CH) - dk grayish brn 10YR4/2, f black organic lamination, soft-firm, greasy.															
 45	/\			SP	sand, 5% sub	bang	D SAND (SP) - dk grayisl mm gravel up to 0.25, clay													
				GW		ED (GRAVEL (GW) - brn, f gra	avel, o	cobbles, sand, trace											
	$/ \setminus$			CL	CLAY WITH	COE	d, clast supported. BBLES (CL) - brn 10YR4/3 ilt, large cobbles, some lan													
50		CC95		SP	POORLY GR pockets, well		D SAND (SP) - dk grayisl soft, wet.	h brn,	, m sand, thin clay											
 - 55			5 10	10	10	10	10	10	ML			VEL (ML) - brn, 40% ang y cemented, soft, wet at de	_	el up to 1.75, silt						
																				POORLY GR 2, subrnd, so
- 60		CC96		SP	- sparse g	grave	l, 4 basalt cobble													
							DAVEL (2002)	F) /F ?		retusal,	hard drilling chatter									
 65			10		m-c sand, 5%	6 fine	GRAVEL (GW) - dk brn 7. is, subrnd to ang, mm and iusky odor, wet.													
- 				GW																
70	X						idish brn 5YR3/3, subround to ang gravels up to 1.5, s, metamorphic clasts, clast supported.				illing									
											CH2MHILL									

SHEET 3 of 4							PROJECT NUMBER: 315024.IM.02					BORING NUMBER: MW-39					
						S		RING LO									
PROJECT NAM		F	- L' (Di	1 2004			E DEPTH (1	ft):		LLING CON							
PG&E Topo SURFACE ELEN 465.3 ft.	/ATIO		NORTH		NAD 27 Z 5):	EAS	TING (CCS	18.3 NAD 27 Z 5): ,099.30		Pro E AND TIM 9/2004		orp. Mare	DATE AND TIME COMPLETED: 04/20/2004				
DRILLING MET	THOD:			.02, 13 1130		WA	TER LEVEL	•		LLING EQU			ontinuous 4 core, 6 casing				
LOCATION: Floodplain well field Topock, CA Central dune area, app railroad, 150' east of extraction well bench.												J. Wellmeyer					
Tall		SAMPLI		action well	SOIL DESCRIPTION					COMMENTS							
DEPTH BGS (feet)	TYPE/ NUMBER	RECOVERY (ft)	USCS CODE	SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.						DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.						
75		CC97	10	- GW	m-c sand, 5% clast supporte - cemente	% finesed, m	s, subrnd to usky odor, w	s up to 2 fining up	Icanic cla	asts, loose,	2.5,						
80 85		CC98	9	• GW	- brn 7.5Y	YR4/3						hard dr					
 				GM				(GM) - dk reddi soft to firm, grave			6	hard dr	illing				
90 		CC99	9	9	9	9	9	GW	up to 1 1/2, 5% cl		D GRAVEL (GW) - dk reddish brn 5YR3/2, pea gravel 6 clay, rnd to ang, loose, wet.			vel			
95 					30% clay, and - 25% cla compacte	ng clas ay, sha ed, dry	ets, compacte attered grave ,, dark reddi	els, green mm, cl	last supp	oorted,	orn,	hard dr	illing				
100		CC100	0 10	GW/GC	moist, dar			g, ming upwalus	o, angnu	, 1003C,			illing @ 17:15, resume 4/20/04, ard drilling				
105	<u> </u>																
													CH2MHILL				



SHEET 4 of 4						PROJECT NUMBER: 315024.IM.02				BORING NUMBER: MW-39		
						SOIL BORING						
PROJECT NAM		[ny costicant	tion (Dh	200 1 2004	Н	OLE DEPTH (ft):		DRILLING CONTRAC				
PG&E Topo SURFACE ELEV 465.3 ft.	/ATIO		IORTH:		•	118.3 ASTING (CCS NAD 27 Z : 7,616,099.30	5):	DATE AND TIME STA 04/19/2004	Corp. Mare RTED:	DATE AND TIME COMPLETED: 04/20/2004		
DRILLING MET Rotos					w	ATER LEVEL (ft):		DRILLING EQUIPME	NT: Rig with c	ontinuous 4 core, 6 casing		
LOCATION: Flo	odplain	well fiel	d Topod	ck, CA Ce	ntral dune area, ap pench.	proximately 300' north of		LOGGED BY:	. Wellmey			
	SAMPLE					SOIL DESCRIPTIO	N	I.		COMMENTS		
DEPTH BGS (feet)	INTERVAL	INTERVAL TYPE/ NUMBER RECOVERY (ft)		USCS CODE	PERCENT COMPO	OIL NAME, USCS SYMBOL, OSITION, GRADING, GRAIN /CONSISTENCY, STRUCTUR	SHAPE	, MINERALOGY, STURE.	DAILY ST	OBSERVATIONS AND OPERATIONS, ART AND END TIMES , DRILL RATE, S, SAMPLING AND TESTING NOTES.		
 			-		WELL GRADED GRAVELS WITH CLAY (GW/GC) - dk reddish brn, 35% clay, some silt, subang clasts, tight and compacted, clast supported, dry.				hard dr	rilling		
- 110 	$\setminus /$			GW/GC					hard dr	illing, drill chatter		
 115		CC101	10	<i>,</i> σσ					chatter	refusal		
- 					- 60% clay, 3	35% f sand to f gravel, 5%	silt, sh	attered, dry	stop 4/	20/04, 10:15, bottom of boring		
						Boring Terminated at 3	3(0) 4/	20/04, 10.13, bottom or boning				
					ABBREVIAT cc = continue brn = brown It = light dk = dark vf = very fine f = fine-grain m = medium c = coarse-gr vc = very coa ang = angula subang = sul subrnd = sub rnd = rounde br = bedrock ss = sandstor conglom = co comptd = co qtz = quartz	e-grained ned l-grained rained arse-grained ar bangular brounded ed c formation one onglomerate impacted						
				<u> </u>					•	CH2MHILL		